TYPE E8 TRANSDUCER

Fig. E8-1 - Type E8 transducer

FUNCTION: A reciprocal transducer and a standard hydrophone for high ultrasonic frequencies.

DESIGN: A 2-cm-diam lithium sulfate disk in an oil-filled chamber with a rubber window. An impedance matching transformer couples the crystal to the cable. More information is available in Reference 8.

FREQUENCY RANGE: 200 to 2000 kHz
FFVS: See Fig. E8-2
TVR: See Fig. E8-3
MAXIMUM DEPTH: 34 m
TEMPERATURE RANGE: 5 to 35°C
MAXIMUM DRIVING SIGNAL: Approximately 1 W, but monitor driving current or voltage for distortion
ELECTRICAL IMPEDANCE: See Fig. E8-4
DIRECTIVITY: Same in horizontal (XY) and vertical (XZ) planes. See Fig. E8-5
WEIGHT: 3.2 kg (7 lbs)
SHIPPING WEIGHT: 6.8 kg (15 lbs)
CABLE LENGTH: 30 m

CABLE CODE: coaxial center — high signal
coaxial shield — low signal

INSTRUCTIONS FOR THE USER:
See Appendix D for preparation steps.
See Fig. E8-6 for acoustic center at front and center of disk.
Align acoustic axis by maximum signal vs rotation at maximum frequency
Acoustic window is natural rubber vulnerable to abrasion and in time becomes sticky. This does not affect acoustic performance, but the transducer should be returned to the USRD for maintenance.

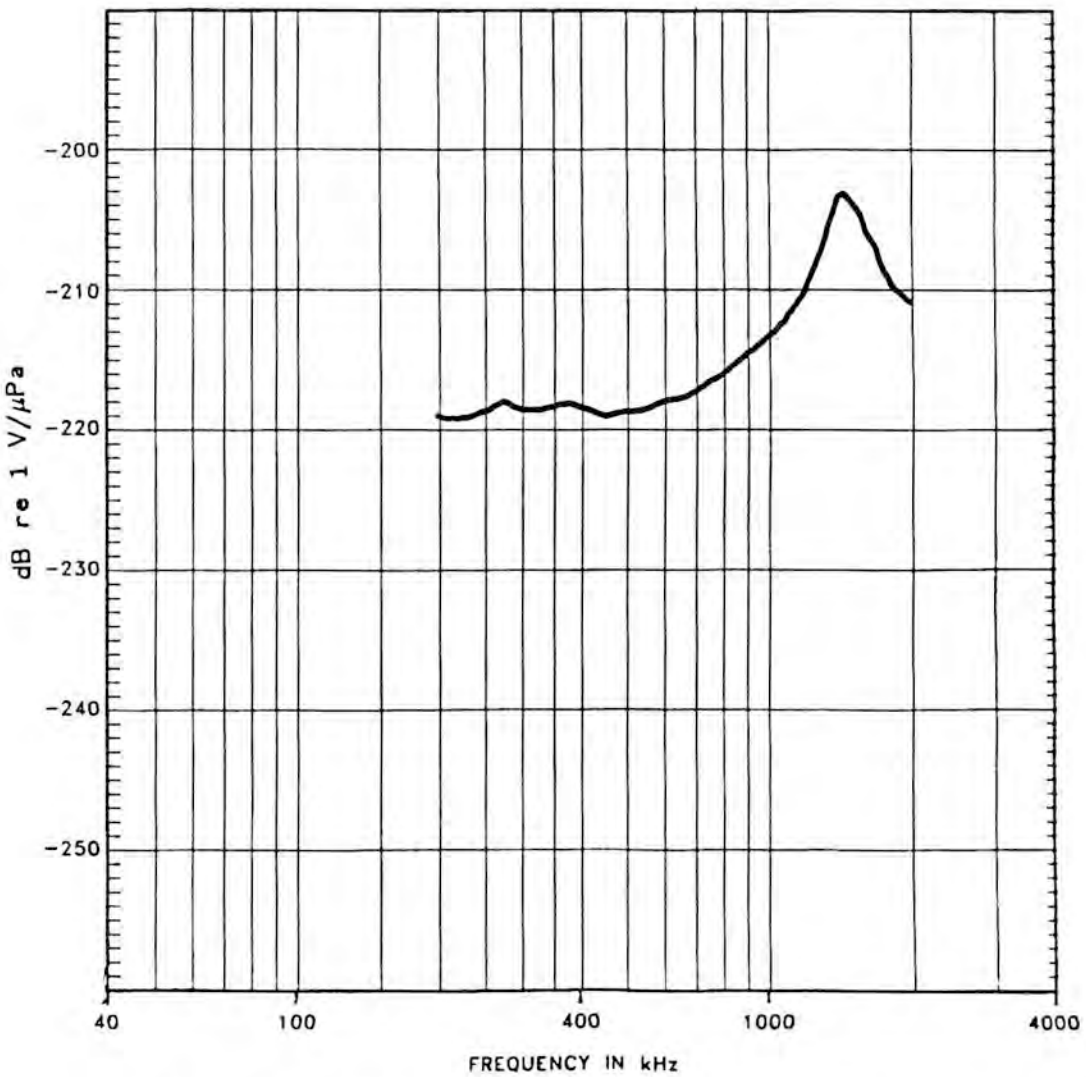

Fig. E8-2 - Typical FFVS for Type E8 transducer with 30-m cable.

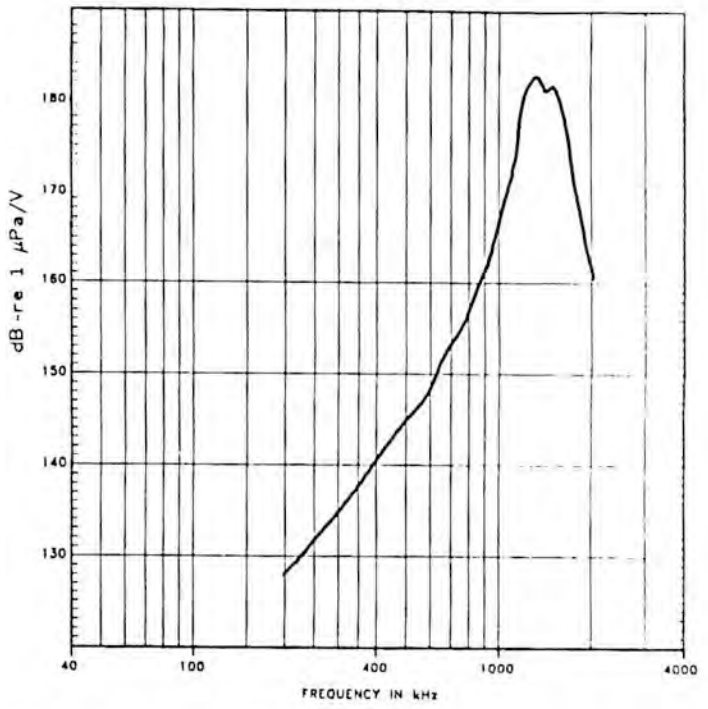

Fig. E8-3 - Typical TVR for Type E8 transducer with 30-m cable.

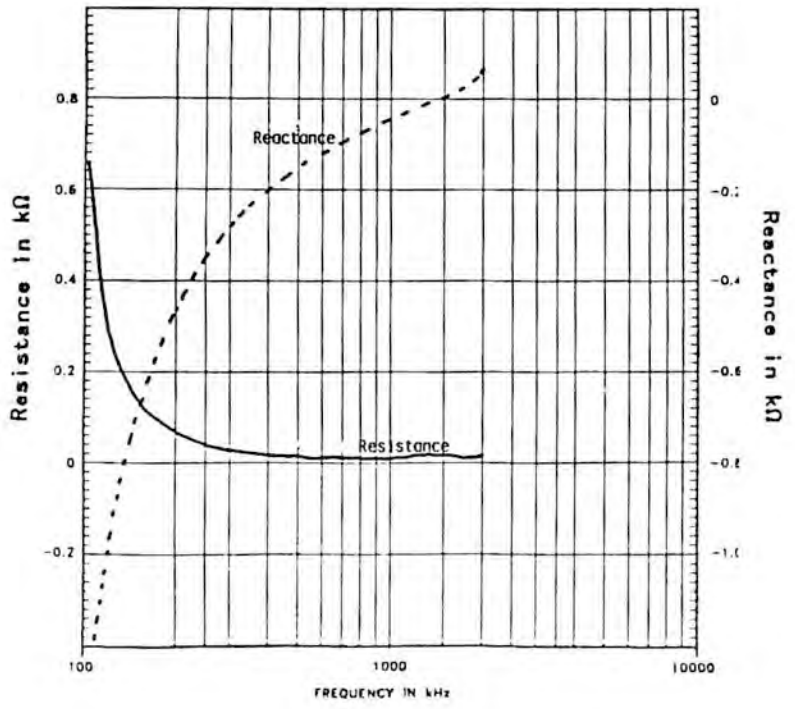

Fig. E8-4 - Typical series impedance for Type E8 transducer with 30-m cable.

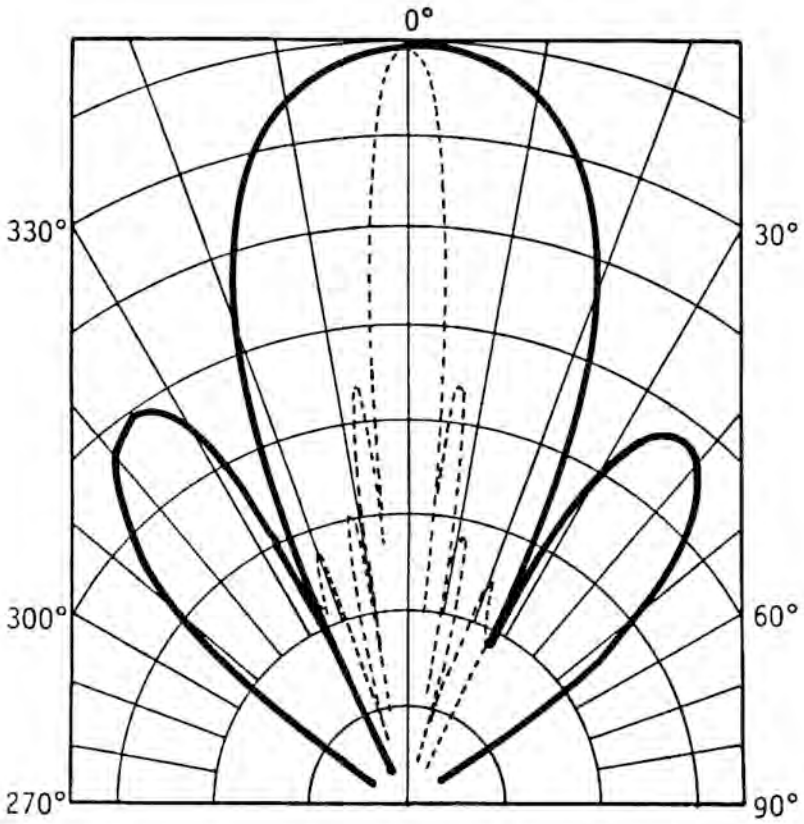

Fig. E8-5 - Directivity for Type E8 transducer, in planes that include the X axis. Scale: center to top of grid is 40 dB; solid line curve is for 3000 kHz; dashed line curve is for 1000 kHz.

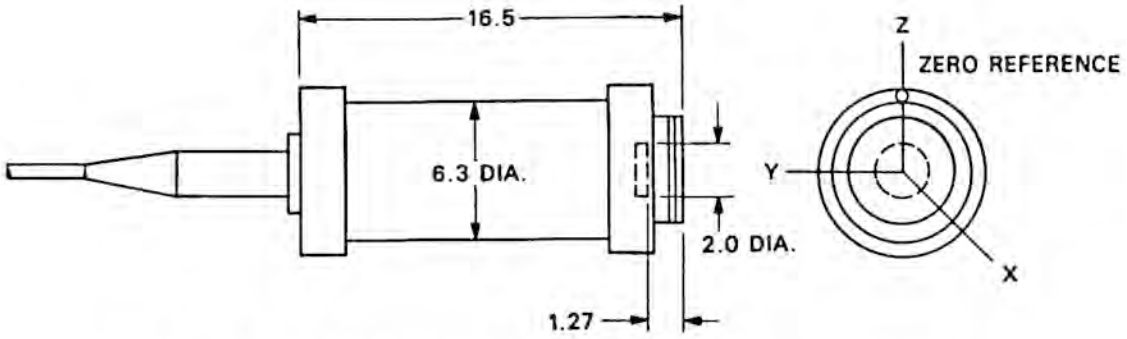

Fig. E8-6 - Dimensions (in cm) and orientation of Type E8 transducer.